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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/584,236

**Applicant(s)**

PROUST ET AL.

**Examiner**

KHALID ABDALLA

**Art Unit**

2419

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 31-48 is/are pending in the application.  
4a) Of the above claim(s) 1-30 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 31-48 is/are rejected.  
7) ☒ Claim(s) 34,38,44 and 48 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 09/26/2006  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Claim Objections**

1. Claims 34, 38, 44 and 48 are objected to because of the following informalities:

Regarding claim 34, "... a reference ..." in line 3 seems to refer back to "... a reference ..." in claim31 in line 4. If this is true, it is suggested to change "... a reference ..." to "... the reference ..." Similar correction need to be done in claim38 line 9.

Regarding claim 44, "... a datagram ..." in line 2 seems to refer back to "... a datagram ..." in claim31 in line 4. If this is true, it is suggested to change"... a datagram ..." to "... the datagram ...".

Regarding claim 48, "... a table of references ..." in line 3 seems to refer back to "... a table of references..." claim46 in line 5. If this is true, it is suggested to change"... a table of references..." to "... the table of references...".

### ***Claim Rejections - 35 USC § 112***

2. Claim31-42are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 31 recites the limitation "...the index field...." in line 7 and 12. There is insufficient antecedent basis for this limitation in the claim.

Regarding claims 32-42, these claims are rejected since they depend on claim31.

Claim 37 recites the limitation "...the last value...." in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 41 recites the limitation "...the longest destination prefix...." in line 5. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 31-34, 38-42 and 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tappan (US-PAT-NO: 6473421) in view of Ryu et al (US -PAT-NO: 6791949).

Regarding claim 31 Tappan discloses a method of marking a datagram (FIG .5 shows IP datagram tag and labeled see co1:3 lines 33-41) transmitted in a communications network comprising routers interconnected (Internetwork communications based on operations of routers see co1:1 lines 9-11 ) by transmission links from a datagram source terminal (FIG. 6 depicts transmission of a packet from a source router S) connected to a first router (FIG.6 shows I-ASBR) of the network to a datagram destination (FIG. 6 depicts a destination node D ) terminal connected to a second router (FIG.6 shows E-ASBR) of the network (FIG. 6 depicts transmission of a packet from a source router S to a destination node D. The forwarding

path passes through a routing domain 44 to which neither S nor D belongs see coln: 5 lines 46-49)

the datagram comprising a vector formed of ordered fields each containing a reference the method comprising the following steps executed when a router receives the datagram (when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see co1:2 lines 28-35):

Reading a value in the index field of the datagram;

reading the reference contained in the field of the vector of the datagram designated by the read index value (the IP process inspects the IP datagram's header 38, and in particular its IP destination-address field. That field's contents identify the host system to which the datagram's contents are to be directed see , the datagram further comprising a vector index field, and each router having a table of references (a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see coln:2 lines 28-35)  
; and

forwarding the datagram to a next router of the network (Routers inform other routers of

the host systems to which they can forward communications packets, and they employ such information obtained from other routers to populate their forwarding tables see col:2 lines 6-10 also when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col: 2 lines 28-35).

Tappan disclose not disclose if the table of the router does not contain the read reference, writing a reference selected in the table of the router into the field of the vector of the datagram designated by the read index value;

writing into the index field of the datagram a value equal to the read value incremented by one unit. Ryu et al from the same or similar field of endeavor teach if the table of the router does not contain the read reference (A node's Route Table entry contains primary and secondary routes to reach it, with respect to a plurality of Quality of Service (QoS) routing metrics (i.e., such as bandwidth and delay). Routes are represented by the "next hop address" (gateway node) through which the node can be reached and the level of QoS that the route is capable of supporting see coln: 3 lines 2-8)

writing a reference selected in the table of the router into the field of the vector of the datagram designated by the read index value writing into the index field (if the RUR transmitter is not currently listed as the primary or secondary gateway, and if the RUR represents an improvement over the existing primary gateway entry, then the primary gateway information is moved to the secondary fields and the RUR transmitter and

associated metric data from the RUR is written into the primary gateway fields, Otherwise, if the RUR represents an improvement over the existing secondary gateway entry, then the RUR transmitter and associated metric data from the RUR is written into the secondary gateway fields see coln:18 lines 46-56)

Of the datagram a value equal to the read value incremented by one unit (The LQ filter value is incremented for each received packet and decremented for each missed packet. Missed packets are detected using the transmitter sequence number (last received and current received sequence numbers). In one illustrative embodiment the increment and decrement values can be set for an expected link throughput (i.e., setting the increment and decrement values to 1 and 3 respectively will result in a stable LQ value if the link is operating at 75%) see coln:24 lines 44-51). Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ryu et al in the system of Tappan The method of Tappan can be implemented on any type of method if the table of the router does not contain the read reference, writing a reference selected in the table of the router into the field of the vector of the datagram designated by the read index value;

writing into the index field of the datagram a value equal to the read value incremented by one unit which is taught by Ryu et al with a motivation in order to provide a network protocol which is capable of rapidly adapting to network changes.

Regarding claim32 note that Tappan discloses the method, wherein the references contained in the table of references of the router are associated with respective routes in the network (When a router receives an IP datagram, it searches through the prefix

entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35).

Regarding claim 33, Note that Tappan discloses the method of, wherein the table of references of the router is a portion of a routing table of the router, the portion corresponding to a single destination prefix contained in the routing table (When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35).

Regarding claim 34 note that Tappan discloses the method, wherein the datagram belongs to a flow of datagrams sent successively by the source terminal (FIG. 6 depicts transmission of a packet from a source router S) to the destination terminal (FIG. 6 depicts a destination node D), and wherein the read reference is identical to a reference written by the router at the time of forwarding an earlier datagram of the flow (setting the Forwarding Address field to ABR2's address, and placing in the MPLS Label field a label value, say, T6, that identifies the location of ABR2's forwarding-table entry that tells where to forward packets destined for E-ASBR. ABR2 must then decide into



which areas to flood the thus-generated LSA. (Since it is originating a new LSA, it also puts its own ID in the Advertising Router field.) See col 9 lines 24-31)

Regarding claim 38, Note that Tappan discloses a method of forwarding a datagram by a router of a communications network (Internetwork communications based on operations of routers see col 1:1 lines 9-11 ), the router having a table of references associated with respective routes between the router and a destination terminal of the datagram connected to the network (network is a geographically distributed collection of interconnected subnetworks, such as local area networks (LAN), that transport data between network nodes The network topology is defined by an arrangement of network nodes that communicate with one another, typically through one or more intermediate network nodes, such as routers and switches see col 1:1 lines 22-26), the forwarding method comprising the following steps:

on reception of the datagram by the router, reading a reference in the datagram; and looking up the read reference in the table of references of the router (each ABR (area border router) maintains a separate LSDB for each of its routing areas. In operation, network nodes in a routing area "flood" LSAs (link-state data base) to ensure that every node in that area populates its LSDB with the same set of routing and topology information see col: 5 lines 3-7),  
if the table contains the read reference, forwarding the datagram along the route associated with the read reference,  
if not, selecting a reference in the table and forwarding the datagram along the (when a router receives an IP datagram, it searches through the prefix entries in the forwarding

table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see co1:2 lines 28-35) route associated with the selected reference; in which method the read reference was written beforehand into the datagram using the marking method of.

Regarding claim 39, Note that Tappan discloses the method, wherein the reference selected in the table of references of the router is also written into the datagram (when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see co1:2 lines 28-35) using the marking method of.

Regarding claim 40, Note that Tappan The method, wherein the table of references is associated with a single destination prefix contained in a routing table of the router (prefixes may be aggregated as a single address prefix 128.52.10.0/24 which contains both IP address ranges see co1:2 lines 50-52 ).

Regarding claim 41, Note that Tappan discloses the method, comprising the following steps executed at the time of reception of the datagram by the router before looking up the read reference in the table of references of the router (each ABR(area border router) maintains a separate LSDB for each of its routing areas. In operation, network nodes in a routing area "flood" LSAs (link-state data base) to ensure that every node in that area populates its LSDB with the same set of routing and topology

information see col: 5 lines 3-7),

reading a destination address in the datagram; and selecting in the routing table of the router the longest destination prefix corresponding to the read destination address, the table of references of the router in which the reference read in the datagram is then looked up being associated with the selected destination prefix (Two or more address prefixes may be aggregated if they specify contiguous ranges of network addresses or if one prefix's range of addresses is a superset of the other prefixes see co1:2 lines 40-42), the table of references of the router in which the reference read in the datagram is then looked up being associated with the selected destination prefix (For example, consider the address prefixes 128.52.10.0/24 and 128.52.10.5/30. Since the prefix 128.52.10.0/24 includes every IP address in the subnet work described by the prefix 128.52.10.5/30, the two prefixes may be aggregated as a single prefix 128.52.10.0/24 see co1:2 lines 43-47)

Regarding claim 42, Note that Tappan discloses The method of, wherein the table of references further comprises, for each reference of the table (when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see co1:2 lines 28-35), a load value assigned to the route associated with the reference (Each switch associates a local virtual path/virtual channel indicator (VPI/VCI) with a channel or path that runs through it. When an ATM switch receives a cell, it consults the cell's VPI/VCI

field to identify by table lookup the interface through which to forward the cell. It also replaces that field's contents with a value indicated by the table as being the next switch's code for that path or channel, and it sends the resultant cell to the next switch see coln: 4 lines 1-9).

and wherein the selected reference corresponds to a minimum load value of the routes associated with references contained in the table of references ( When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35).

Regarding claim 46 Tappan discloses a router (FIG. 6 depicts transmission of a packet from a source router S) comprising: means for reading a value in a vector index field of a datagram received by the router;  
means for reading a reference contained in a vector field of the datagram designated by the read index value (the IP process inspects the IP datagram's header 38, and in particular its IP destination-address field. That field's contents identify the host system to which the datagram's contents are to be directed see , the datagram further comprising a vector index field, and each router having a table of references (a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over

which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see coln: 2 lines 28-35)

means for storing a table of references;

means for associating references in the table with routes (When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35);

means for looking up a read reference in the table of references of the router, adapted to command forwarding of the datagram along the route associated with the read reference if the table of references contains the read reference(In addition to other information, each entry includes a label, which is an index into the forwarding table of the label-switching router that receives it. When a router receives such a packet, it consults the forwarding-table entry that the label specifies and replaces that label with a replacement label that the specified forwarding-table entry contains. That replacement label is typically one that the next router on the path to the requested destination has asked to be included in packets sent to it and intended for the destination with which the forwarding table is associated see coln:3 lines 6-16)

means for selecting a reference in the table of references, adapted to be activated if the table of references does not contain the read reference and to command forwarding of the datagram along the route associated with the selected reference (When an ATM

switch receives a cell, it consults the cell's VPI/VCIfield to identify by table lookup the interface through which to forward the cell. It also replaces that field's contents with a value indicated by the table as being the next switch's code for that path or channel, and it sends the resultant cell to the next switch. In other words, the function performed by the VPI/VCi field enables it to serve as the stack's top label see coln:4 lines 3-10) ; and

Tappan does not disclose means for writing a value equal to the read value incremented by one unit into the index field of the datagram. Ryu et al from the same or similar endeavor teach (The LQ filter value is incremented for each received packet and decremented for each missed packet. Missed packets are detected using the transmitter sequence number (last received and current received sequence numbers). In one illustrative embodiment the increment and decrement values can be set for an expected link throughput (i.e., setting the increment and decrement values to 1 and 3 respectively will result in a stable LQ value if the link is operating at 75%) see coln:24 lines 44-51) . Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ryu et al in the system of Tappan The method of Tappan can be implemented on any type of method means for writing a value equal to the read value incremented by one unit into the index field of the datagram which is taught by Ryu et al with a motivation in order to provide a network protocol which is capable of rapidly adapting to network changes.

Regarding claim47 Tappan discloses the router (FIG. 6 depicts transmission of a packet from a source router S). Tappan disclose all the subject matter with the

exception of further comprising means for writing the selected reference into the vector field of the datagram designated by the read index value. Ryu et al from the same or similar field of endeavor teach further comprising means for writing the selected reference into the vector field of the datagram designated by the read index value (The LQ filter value is incremented for each received packet and decremented for each missed packet. Missed packets are detected using the transmitter sequence number (last received and current received sequence numbers). In one illustrative embodiment the increment and decrement values can be set for an expected link throughput (i.e., setting the increment and decrement values to 1 and 3 respectively will result in a stable LQ value if the link is operating at 75%) see coln:24 lines 44-51)

Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ryu et al in the system of Tappan The method of Tappan can be implemented on any type of method further comprising means for writing the selected reference into the vector field of the datagram designated by the read index value which is taught by Ryu et al with a motivation in order to provide a network protocol which is capable of rapidly adapting to network changes.

Regarding claim 48 note that Tappan discloses the router (FIG. 6 depicts transmission of a packet from a source router S), wherein the association means are included in means for calculating a routing table of the router, the calculation means belonging to a control unit of the router (the router installs that LSA in a topological-information base from which it calculates its forwarding table. If the router is an area border router of the type that the illustrated embodiment employs, it additionally

originates a filtered version of that LSA, as will be described presently see coln:8 lines 31-36)

the association means being further adapted to associate a table of references with a single destination prefix contained in the routing table of the router, the table of references (When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28- 35).

of the router comprising, for each reference in the table, a load value assigned to the route associated with the reference (Each switch associates a local virtual path/virtual channel indicator (VPI/VCI) with a channel or path that runs through it. When an ATM switch receives a cell, it consults the cell's VPI/VCI

field to identify by table lookup the interface through which to forward the cell. It also replaces that field's contents with a value indicated by the table as being the next switch's code for that path or channel, and it sends the resultant cell to the next switch see coln: 4 lines 1-9)

; and

the reference selection means being adapted to select the reference for which the route corresponds to a minimum load value ( when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that



matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35).

5. Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tappan (US-PAT-NO: 6473421) in view of Ryu et al (US –PAT-NO: 6791949) as applied in claim31 above and further in view of Ofek et al (US-PAT-NO:7343619) .

Regarding claim35 note that Tappan discloses the method of, wherein the datagram belongs to a forward flow of datagrams sent successively by the source terminal (FIG. 6 depicts transmission of a packet from a source router S) to the destination terminal (FIG. 6 depicts a destination node D), the forward flow relating to a communication session, , sent by the terminal receiving forward flow datagrams and received by the terminal sending forward flow datagrams before sending the forward flow datagram (The top label is the label that the ABR has been requested to place in packets being sent to the destination that the LSA's Forwarding Address field specifies. The next label is the one that the LSA's MPLS Label field specifies. In this case, ABR1 uses as the top label a value, T5, that TR0 has asked it, in a TDP message, to use in packets sent to TR0 for forwarding to the router, ABR2, identified in the AS-External LSA's Forwarding Address field see coln: 11 lines 3-9),

Tappan and Ryu et al does not disclose, wherein the datagram further comprises

an additional vector formed of fields that are intended to receive references written into the fields of a vector of a backward flow datagram relating to the communication session. Ofek et al from the same or similar endeavor teach (the result of the sequential checks by the sequence of TTCs is validation that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150. In general, the communications path includes second computing element, third computing element and so on, each of which has the TTC 120TTC functionality (as was described in detail in FIG. 9 and FIG. 11) capable of validating that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150 see coln:34 lines 30-41). Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ofek et al in the system of Tappan and Ryu et alThe method of Tappan and Ryu et al can be implemented on any type of method wherein the datagram further comprises an additional vector formed of fields that are intended to receive references written into the fields of a vector of a backward flow datagram relating to the communication session which is taught by Ofek et al with a motivation in order to provide a trusted flow of packets.

Regarding claim 36 Tappan and Ryu et al disclose the method (Tappan: FIG .5 shows IP datagram tag and labeled see co1:3 lines 33-41). Tappan and Ryu et al disclose all the subject matter with exception of wherein initial references are written by the source terminal into the fields of the vector of the forward flow datagram the initial references being respectively identical to references contained in fields of an additional

vector of the backward flow datagram. Ofek et al from the same or similar field of endeavor teach wherein initial references are written by the source terminal into the fields of the vector of the forward flow datagram (FIG. 28 is a functional description of a system that generates and sends data packets with security tag vectors over IP (Internet protocol) VPN (virtual private network) connection through a network interface, e.g., firewall, classifier, and policer, while mapping data packets with verified security tag vectors to premium service see coln:9 lines 34-40)

the initial references being respectively identical to references contained in fields of an additional vector of the backward flow datagram (the result of the sequential checks by the sequence of TTCs is validation that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150. In general, the communications path includes second computing element, third computing element and so on, each of which has the TTC 120TTC functionality (as was described in detail in FIG. 9 and FIG. 11) capable of validating that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150 see coln: 34 lines 30-41).

Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ofek et al in the system of Tappan and Ryu et al. The method of Tappan and Ryu et al can be implemented on any type of method wherein initial references are written by the source terminal into the fields of the vector of the forward flow datagram the initial references being respectively identical to references contained in fields of an

additional vector of the backward flow datagram which is taught by Ofek et al with a motivation in order to provide a trusted flow of packets .

Regarding claim 37, Note that Tappan discloses the method, wherein the forward flow datagram further comprises a vector length field that is intended to receive the last value written into the index field of the backward flow datagram (a length field 524 and a value field 526. The type field 522 indicates what type of information is stored in the value field 526. The length field 524 identifies the length, usually in octets, of the TLV 520. The value field 526 stores the specific value transported by the TLV see col: 11 lines 13-16 and FIG.5).

6. Claims 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tappan (US-PAT-NO: 6473421) in view of Ofek et al (US-PAT-NO: 7343619).

Regarding claim 43 Tappan discloses a terminal (FIG. 6 depicts transmission of a packet from a source router S) comprising:  
means for producing a datagram to be sent by the terminal (FIG. 6 depicts transmission of a packet from a source router S to a destination node D. The forwarding path passes through a routing domain 44 to which neither S nor D belongs see coln: 5 lines 46-49)  
the datagram comprising an ordered field vector and a vector index field;  
means for writing an initial reference into each field of the vector of the datagram to be sent by the terminal (when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that

route's fields that specify the interface over which it should forward the packet see col:1:2 lines 28-35) and;

Tappan all the subject matter of the claimed invention with the exception of means for writing an initial value into the index field of the datagram to be sent by the terminal. Ofek et al from the same or similar endeavor teach means for writing an initial value into the index field of the datagram to be sent by the terminal (the corresponding header fields are computed, the header is assembled, and the corresponding data bytes appended as a payload. If the TCP layer entity has to acknowledge the reception of data bytes along the other direction of the TCP connection, the acknowledgement information is added and put inside the corresponding TCP header fields 1840. In the preferred embodiment the acknowledgement information consists of an Acknowledgement number that identifies the last in-sequence byte received, and an ACK bit flag that indicates that the acknowledgement number field contains a valid value coln:31 lines 2-67 and coln:32 lines 1-2). Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ofek et al in the system of Tappan and The method of Tappan and can be implemented on any type of method means for writing an initial value into the index field of the datagram to be sent by the terminal which is taught by Ofek et al with a motivation in order to provide a trusted flow of packets.

Regarding claim,44 Tappan disclose all the subject matter of claimed invention with the exception of

the terminal of, further comprising:

means for reading second references in fields of an additional vector contained in a datagram received by the terminal; and

means for storing the second references with communication session context data of the received datagram in a communication session context table of the terminal, wherein the initial reference written into each field of the vector of the datagram. to be sent by the terminal is one of the second references read in a field of the additional vector of the received datagram when the datagram to be sent belongs to the communication session of the received datagram .

Ofek et al teach from the same or similar endeavor teach the terminal, further comprising:

means for reading second references in fields of an additional vector contained in a datagram received by the terminal (the result of the sequential checks by the sequence of TTCs is validation that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150. In general, the communications path includes second computing element, third computing element and so on, each of which has the TTC 120TTC functionality (as was described in detail in FIG. 9 and FIG. 11) capable of validating that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150 see coln:34 lines 30-41); and

means for storing the second references with communication session context data of

the received datagram in a communication session context table of the terminal, wherein the initial reference written into each field of the vector of the datagram (the corresponding header fields are computed, the header is assembled, and the corresponding data bytes appended as a payload. If the TCP layer entity has to acknowledge the reception of data bytes along the other direction of the TCP connection, the acknowledgement information is added and put inside the corresponding TCP header fields 1840. In the preferred embodiment the acknowledgment information consists of an Acknowledgement number that identifies the last in-sequence byte received, and an ACK bit flag that indicates that the acknowledgement number field contains a valid value coln:31 lines 2-67 and coln:32 lines 1-2) to be sent by the terminal is one of the second references read in a field of the additional vector of the received datagram when the datagram to be sent belongs to the communication session of the received datagram (FIG. 28 illustrates a system that generates and sends data packets with security tag vectors 711 over IP (Internet protocol) VPN (virtual private network) connection 2810 through a network interface, e.g., firewall, classifier, and policer, while mapping data packets with verified security tag vectors 111 to premium service see coln:39 lines 12-17).

Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ofek et al in the system of Tappan and The method of Tappan and can be implemented on any type of method the terminal of, further comprising:  
means for reading second references in fields of an additional vector contained in a datagram received by the terminal; and

means for storing the second references with communication session context data of the received datagram in a communication session context table of the terminal, wherein the initial reference written into each field of the vector of the datagram, to be sent by the terminal is one of the second references read in a field of the additional vector of the received datagram when the datagram to be sent belongs to the communication session of the received datagram which is taught by Ofek et al with a motivation in order to provide a trusted flow of packets.

Regarding claim 45 Tappan discloses modified by ofek et al teach a terminal (Tappan: FIG. 6 depicts transmission of a packet from a source router S), wherein the means for producing the datagram (Tappan : FIG. 6 depicts transmission of a packet from a source router S to a destination node D. The forwarding path passes through a routing domain 44 to which neither S nor D belongs see coln: 5 lines 46-49) to be sent are such that the datagram to be sent further comprises an additional field vector (Ofek et al :the result of the sequential checks by the sequence of TTCs is validation that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150. In general, the communications path includes second computing element, third computing element and so on, each of which has the TTC 120TTC functionality (as was described in detail in FIG. 9 and FIG. 11) capable of validating that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150 see coln:34 lines 30-41), the terminal further comprising:



means for reading first references in fields of a vector contained in the received datagram (Tappan : when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col1:2 lines 28-35);

means for storing the first references in the table of communication session contexts of the terminal with the communication session context data of the received datagram (the result of the sequential checks by the sequence of TTCs is validation that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150. In general, the communications path includes second computing element, third computing element and so on, each of which has the TTC 120TTC functionality (as was described in detail in FIG. 9 and FIG. 11) capable of validating that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150 see coln:34 lines 30-41); and means for writing the first references into the fields of the additional vector of the datagram to be sent by the terminal when the datagram to be sent belongs to the communication session of the datagram received (Ofek et al : the corresponding header fields are computed, the header is assembled, and the corresponding data bytes appended as a payload. If the TCP layer entity has to acknowledge the reception of data bytes along the other direction of the TCP connection, the acknowledgement

information is added and put inside the corresponding TCP header fields 1840. In the preferred embodiment the acknowledgment information consists of an Acknowledgement number that identifies the last in-sequence byte received, and an ACK bit flag that indicates that the acknowledgement number field contains a valid value coln:31 lines 2-67 and coln:32 lines 1-2).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(US –PAT-NO: 7369556), (Rekhter et al) discloses, Router for virtual private network employing tag switching.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHALID ABDALLA whose telephone number is (571)270-7526. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton can be reached on 571-272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. A./

Examiner, Art Unit 2419

/DANG T TON/

Supervisory Patent Examiner, Art Unit 2419/D. T. T./

Supervisory Patent Examiner, Art Unit 2419